

## **DETAILED ACTION**

### ***Status of Claims***

Claims 18-25, 27-28 and 30-42 are remained for examination. Claims 1-17, 26, 29 and 43-45 are cancelled. Claims 18, 32 and 35 are amended.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 11, 2010 has been entered.

### ***Previous Grounds of Rejection***

Regarding claims 18, 20-22, 25-26, 30-31, 38, 40 and 43-45, the rejection under 35 U.S.C. 102(b) as being anticipated by Fitt et al. (5,385,608) has been withdrawn, because the claim 18 is amended to incorporated the subject matter of claims 26, 32 and 35. Among them, claims 26 and 43-45 are cancelled.

Regarding claims 18-23, 25-26, and 40-41, the rejection under 35 U.S.C. 102(b) as being anticipated by Gabel et al. (3,607,393) has been withdrawn, because the claim 18 is amended to incorporated the subject matter of claims 26, 32 and 35. Among them, claims 26 and 43-45 are cancelled.

Regarding claims 18-23, 25-27, 32, 35 and 37, the rejection under 35 U.S.C. 103(a) as being unpatentable over Russell et al. (Journal of Cereal Science 5, 1987, 83-

100) is amended, because the claim 18 is amended to incorporated the subject matter of claims 26, 32 and 35.

Regarding claims 18-38 and 40-41, the rejection under 35 U.S.C. § 103(a) as being unpatentable over Wasserman et al. (U.S. 5,959,102) in view of Kettlitz et al. (U.S. 6,235,894) is amended, because the claim 18 is amended to incorporated the subject matter of claims 26, 32 and 35.

Regarding claims 39-40 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wasserman et al. in view of Kettlitz et al., further in view of Wongsuragrai et al. (EP 0823439) is amended, because the claim 18 is amended to incorporated the subject matter of claims 26, 32 and 35.

### ***Modified Grounds of Rejection***

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-21, 25, 27, 32 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al. (Journal of Cereal Science 5, 1987, 83-100).

Regarding claims 18, 25, 27, 32 and 35, Russell et al. teaches a method of treating native starch with (1) 300 ppm (0.3 g/Kg based on the weight of the starch) of chlorine gas at 22°C for 18 hrs, and (2) treating the resulted chlorinated starch with

Pronase (a protease) at pH 8.3 (page 85 Figure 1, and page 87, 2<sup>nd</sup> and 3<sup>rd</sup> paragraphs). The Examiner realizes that not all physical properties, such as improved viscosity/stability, improved setting properties, etc., are stated in the reference. Since the reference teaches all of the claimed reagents (active chlorine and protease) and composition, as well as process conditions (temperature, pH, time, amount of chlorine), the physical properties of composition would necessarily follow as set forth in MPEP 2112.01(II).<sup>1</sup>

The apparent difference between the applicant's claims 18, 32 and 35 and the teaching from the reference is the order of addition of additives (chlorine) and protease. However, the change in sequence of adding ingredients would have been obvious to one of ordinary skill in the art absent evidence to the contrary. The following is a quotation of MPEP 2144.04 which forms the basis for the rejection: "In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.)".

Regarding claim 19, as discussed above, Russell et al. teaches 300 ppm (0.3 g/Kg based on the weight of the starch) of chlorine gas, which meets the claimed limitations.

Regarding claims 20-21 and 34, as discussed above, Russell et al. teaches the temperature at 22<sup>0</sup>C, which meets the limitations of the instant claims (page 85, Figure 1).

Claims 22-24, 30-31, 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al. as applied to claims 18, 32, 35 and 37 above, and further in view of Kettlitz et al (US 6,235,894).

Regarding claims 22-24, 33 and 36, as discussed above, although Russell et al. teaches a method of treating native starch with (1) 300 ppm (0.3 g/Kg based on the weight of the starch) of chlorine gas at 22<sup>0</sup>C for 18 hrs, and (2) treating the resulted chlorinated starch with Pronase (a protease) at pH 8.3 (page 85 Figure 1, and page 87, 2<sup>nd</sup> and 3<sup>rd</sup> paragraphs), he does not specifically disclose pH value in performing bleaching as per applicant claims 22-24, 33 and 36.

Kettlitz et al. teaches a process for preparing a heat stable viscous starch from waxy starches and applying active chlorine 100-4000 ppm and a pH between 7.5 and 11.5 (claims1- 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Russell et al. and Kettlitz et al. to obtain the invention as specified in the claim 22-24 and 36, motivated by the fact that hypochlorite reaction replaces the difficult to control chemical cross-bonding reaction (e.g. by phosphorus oxychloride) by alkaline chlorine treatment, a combination with this kind of modification can be beneficial too for further enhanced viscosity stabilization (col. 4, lines 49-54).

Regarding claims 30-31, the starches taught by Kettlitz et al. are selected from waxy and maize starches. It meets the instant claimed limitations (col2, lines 46-57, and claims 1-5).

Claims 28, 30-31, 37-38 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al. as applied to claims 18, 32 and 35 above, in view of Wasserman et al (US 5,959,102).

Regarding claims 28 and 37, Russell et al. teaches a method of treating native starch with (1) 300 ppm (0.3 g/Kg based on the weight of the starch) of chlorine gas at 22°C for 18 hrs, and (2) treating the resulted chlorinated starch with Pronase (a protease) at pH 8.3 (page 85 Figure 1, and page 87, 2<sup>nd</sup> and 3<sup>rd</sup> paragraphs).

However, Russell et al. does not specifically teach reactant endoprotease as per claim 28 and 37. Wasserman et al. teaches a process of improving the starch's organoleptic properties by treating raw starch with metallo-endopeptidase thermolysin (Abstract, and col. 1, lines 33-37 and col.8, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Russell et al. and Wasserman et al. to obtain the invention as specified in the claims 28 and 37, motivated by the fact that protease enzymes reduce the steeping time and facilitate the starch wet milling process (col.2, lines 1-3).

Regarding claims 30 and 31, Wasserman discloses suitable starch including maize and corn starch (applicant's corn starch) (col.4, line 48, and col.7, line 36) and waxy protein (col. 12, line 54) as instantly claimed (col.3, lines 48-52).

Regarding claims 38, 40 and 41, Wasserman discloses using these treated starches in food products (co. 9, lines 43-44). Although Wasserman does not specially disclose the composition of stabilized starch in sauces, it would have been obvious for one of ordinary skill in the art at the time invention was made to adjust the composition of stabilized starch, including the claimed ranges, based on the desired thickeners for sauces.

Claims 39 and 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references of Russell et al. and Wasserman as applied to Claim 18 and claim 40, further in view of Wongsuragrai et al (EP 0823439).

Regarding claims 39 and 42, Wasserman et al teaches a treated starch having a protein content%  $0.24 \pm 0.03$  and  $0.33 \pm 0.03$  (Table, col.13, lines 11-20), which is encompassed by or overlaps the instant application ranges of protein content.

Although neither Russell et al. nor Wassermann et al. specifically teaches applying the low protein content starches into tablet as per applicant claims 39 and 42, Wongsuragrai et al. points out the low-protein and free-flowing starch can be used as compression filler in tablet (page 2, lines 33-34). The composition of low-protein starch powder are varied, depends on the sources of starches and they are overlap with instantly claims (page 4 the Table and claims 1-7). Therefore, a tablet made from the

starch according to the combined references of Wasserman and Russell et al. would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as suggested by Wongsuragrai et al (page 2, lines 33-34).

***Response to Arguments***

***With regards to the previous Grounds of Rejection***

Applicant's Remarks on February 11, 2010 have been considered but are moot in view of the new ground(s) of rejection. However, the examiner would like to take this opportunity to address some of the Applicant's arguments.

Regarding the rejection under 35 U.S.C.103 (a) as being unpatentable over Russell et al., applicants argue that Russell et al. teaches bleaching the starch and then treating the bleached starch with a protease, the claimed method, however, converting starch with a protease before bleaching step.

Therefore, the resulting starch has improved viscosity stability and/or improved setting properties upon cooling (compared to starch that has been only bleached; see **claim 29**) (is it a typographical error, it should be read as **claim 26**?). There is nothing in Russell et al. that would prompt one of skill in the art to change the order of the steps, and there is nothing in Russell et al. to suggest that changing the order of the steps would result in the improvements in the properties of the resulting starch as recited in **claim 29** (Remarks, pages 8-9).

The Examiner respectfully submits that, as discussed above, the change in sequence of adding ingredients would have been obvious to one of ordinary skill in the art absent evidence to the contrary, in particularly view of MPEP 2144.04.

In response to applicant's argument that the claimed process improves the properties of the starch, applicants are needed to demonstrate the significant improvements by comparing the instant application with the teachings of Russell et al. "the unexpected results for a claimed range as compared with the range disclosed in the prior art had been shown by a demonstration of "a marked improvement, over the results achieved under other ratios, as to be classified as a difference in kind, rather than one of degree" (See MPEP 716.02).

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of the criticality of the order of addition of reagents directly correlated to unexpected results fails to outweigh the evidence of obviousness. Therefore, the rejection with respect to claim 29 under 35 U.S.C.103 (a) as set forth in the last office action stands.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone



number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YUN QIAN/  
Examiner, Art Unit 1793

April 13, 2010

/Melvin Curtis Mayes/  
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